What Is Claimed Is:

1. A method of reducing an aspect ratio of a trench, comprising the steps of:

forming a trench in a substrate;

forming a conformal first insulating layer on a surface of the trench;

forming a conformal second insulating layer on the first insulating layer;

forming a conformal third insulating layer on the second insulating layer;

anisotropically etching the first, second and third insulating layers to form a remaining first insulating layer on a sidewall of the trench, a remaining second insulating layer on the remaining first insulating layer and a remaining third insulating layer on the remaining second insulating layer; and

performing an etching procedure with an etchant to remove the remaining third insulating layer at a third etching rate, part of the remaining second insulating layer at a second etching rate and part of the remaining first insulating layer at a first etching rate;

wherein the third etching rate is greater than the second etching rate and the second etching rate is greater than the first etching rate.

2. The method according to claim 1, wherein the remaining first insulating layer, the remaining second insulating layer and the remaining third insulating layer are lower than a top surface of the substrate.

3. A method of reducing an aspect ratio of a trench, comprising the steps of:

forming a trench in a substrate;

using HDP-CVD to form a conformal Si-rich oxide layer on a surface of the trench;

using HDP-CVD to form a conformal first oxide layer on the Si-rich oxide layer;

using LP-CVD to form a conformal second oxide layer on the first oxide layer;

anisotropically etching the Si-rich oxide layer, the first oxide layer and the second oxide layer to form a remaining Si-rich oxide layer on a sidewall of the trench, a remaining first oxide layer on the remaining Si-rich layer and a remaining second oxide layer on the remaining first oxide layer; and

performing an etching procedure with an etchant to remove the remaining second oxide layer at a third etching rate, part of the remaining first oxide layer at a second etching rate and part of the remaining Si-rich oxide layer at a first etching rate;

wherein the third etching rate is greater than the second etching rate and the second etching rate is greater than the first etching rate.

4. The method according to claim 3, wherein the remaining Si-rich oxide layer, the remaining first oxide layer and the remaining second oxide layer are lower than a top surface of the substrate.

5. The method according to claim 3, wherein the formation of the trench comprises the steps of:

forming a shield layer on part of the substrate; and

using the shield layer as a mask, etching part of the substrate to define the trench therein.

6. The method according to claim 5, wherein the shield layer comprises a pad oxide layer and a silicon nitride layer.

7. The method according to claim 3, further comprising, before forming the Si-rich layer, a step of:

forming a conformal linear layer on the surface of the trench.

8. The method according to claim 3, wherein the first oxide layer is a SiO_2 layer formed by HDP-CVD.

9. The method according to claim 3, wherein the second oxide layer is a TEOS-SiO_2 layer formed by LP-CVD.

10. The method according to claim 3, wherein the etchant is a BOE solution.

11. The method according to claim 10, wherein the third etching rate is 800Å/min, the second etching rate is 400Å/min and the first etching rate is 200Å/min.

12. The method according to claim 3, wherein a thickness of the Si-rich layer is 50~100Å, a thickness of the first oxide layer is 100~120Å and a thickness of the second oxide layer is 100~150Å.

13. A method of reducing an aspect ratio of a trench, comprising the steps of:

forming a trench in a Si substrate;

using HDP-CVD, forming a conformal Si-rich oxide layer on a surface of the trench, wherein a thickness of the Si-rich layer is 50~100Å;

using HDP-CVD, forming a conformal first silicon oxide layer on the Si-rich oxide layer, wherein a thickness of the first oxide layer is 100~120Å;

using LP-CVD, forming a conformal second silicon oxide layer on the first silicon oxide layer, wherein a thickness of the second oxide layer is 100~150Å;

anisotropically etching the Si-rich oxide layer, the first silicon oxide layer and the second silicon oxide layer to form a remaining Si-rich oxide layer on a sidewall of the trench, a remaining first silicon oxide layer on the remaining Si-rich layer and a remaining second silicon oxide layer on the remaining first silicon oxide layer; and

performing an etching procedure with a BOE solution to remove the remaining second silicon oxide layer at a third etching rate, part of the remaining first silicon oxide layer at a second etching rate and part

of the remaining Si-rich oxide layer at a first etching rate;

wherein the third etching rate is greater than the second etching rate and the second etching rate is greater than the first etching rate.

14. The method according to claim 13, wherein the remaining Si-rich oxide layer, the remaining first silicon oxide layer and the remaining second silicon oxide layer are lower than a top surface of the silicon substrate.

15. The method according to claim 13, wherein the formation of the trench comprises the steps of:

forming a shield layer on part of the silicon substrate; and

using the shield layer as a mask, etching part of the silicon substrate to define the trench therein.

16. The method according to claim 15, wherein the shield layer comprises a pad oxide layer and a silicon nitride layer.

17. The method according to claim 13, further comprising, before forming the Si-rich layer, a step of:

forming a conformal linear layer on the surface of the trench.

18. The method according to claim 13, wherein the first silicon oxide layer is a SiO_2 layer formed by HDP-CVD.

19. The method according to claim 13, wherein the second silicon oxide layer is a TEOS-SiO_2 layer formed by LP-CVD.

20. The method according to claim 13, wherein the third etching rate is 800Å/min, the second etching rate is 400Å/min and the first etching rate is 200Å/min.